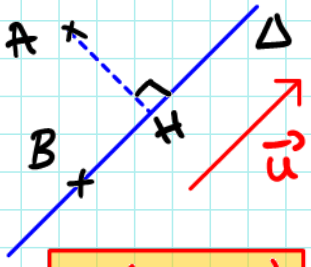
Exemple : $A(1,2,4)$ $B(-1,2,3)$

$\overrightarrow{AB}\begin{pmatrix}-2\\0\\-1\end{pmatrix}$ donc $\|\overrightarrow{AB}\| = \sqrt{2^2+0^2+1^2} = \sqrt{5}$

Distance d'un point et d'une droite.



$$d(A,\Delta) = AH = \frac{\|\overrightarrow{AB}\wedge\vec{u}\|}{\|\vec{u}\|}.$$

$\Delta(B,\vec{u})$

Exemple. $\Delta\left(B(1,2,-1);\ \vec{u}\begin{pmatrix}-1\\1\\2\end{pmatrix}\right)$ et $A(1,-2,-2)$

$$\overrightarrow{AB}\begin{pmatrix}0\\4\\1\end{pmatrix}\wedge\vec{u}\begin{pmatrix}-1\\1\\2\end{pmatrix}$$

$$\overrightarrow{AB}\wedge\vec{u}\begin{pmatrix}+\begin{vmatrix}4&1\\1&2\end{vmatrix}\\-\begin{vmatrix}0&-1\\1&2\end{vmatrix}\\+\begin{vmatrix}0&-1\\4&1\end{vmatrix}\end{pmatrix};\quad \overrightarrow{AB}\wedge\vec{u}\begin{pmatrix}7\\-1\\4\end{pmatrix}$$

Donc $d(A,\Delta) = \frac{\|\overrightarrow{AB}\wedge\vec{u}\|}{\|\vec{u}\|} = \frac{\sqrt{7^2+1^2+4^2}}{\sqrt{1^2+1^2+2^2}}$

$= \sqrt{11}$